

Papers by Bell Laboratories Authors

PHYSICAL SCIENCES

Absorption Curve of the 607- μ m Line in Benzene. J. Stone, *Appl. Opt.* 17 (1978), p. 2876.

Anisotropic Thermal Expansion Behavior in Transcrystalline Polyethylene. T. T. Wang, T. Nishi, and H. M. Zupko, *J. Mater. Sci.*, 13 (1978), pp. 2524-6.

Brillouin Scattering from Polymer Blends. G. D. Patterson, *Polym. Preprints*, 19, No. 1 (1978), pp. 149-51.

Characterization of a Nonlinear Cochlear Model by Wide Band Stimuli. J. L. Hall, *J. Acoust. Soc. Amer.*, 64 (1978), p. S133.

Chemical Kinetics of the Reactions of Silicon Tetrachloride, Silicon Tetrahydride, Germanium, Tetrachloride, Phosphorus Chlorate, and Boron Trichloride with Oxygen. W. G. French, L. J. Psge, and V. A. Foertheyer, *J. Phys. Chem.*, 82 (1978), pp. 2191-4.

Classical Trajectory Calculations of the Dissociation of Hydrogen on Copper (III) The Effect of Surface Roughness. A. Gelb and M. J. Cardillo, *Surf. Sci.*, 75 (July 1978), pp. 199-214.

Comments on the Elucidation of Stereochemical Control in Alpha-Olefin Polymerization via Carbon-13 NMR Spectroscopy of Ethylene-Propylene Copolymers. A. E. Tonelli, *Macromolecules*, 11 (1978), pp. 634-6.

Comparison of Two Independent Determinations of the Structure of Calcium Ascorbate Dihydrate. S. C. Abrahams, *ACTA Crystalline*, 34 (Oct. 15, 1978), pp. 2981-5.

Compatibility and Physical Properties of Blends of Poly(Vinyl Chloride) and PB 3041, A Polymeric Plasticizer. H. E. Bair, D. Williams, T. K. Kwei, and F. J. Padden, *Polym. Preprints*, 19 No. 1 (Mar 1978), pp. 143-8.

Considerations in Dynamic Time Warping Algorithms for Discrete Word Recognition. L. R. Rabiner, A. E. Rosenberg, and S. E. Levinson, *IEEE Trans. Acoust. Speech and Signal Processing*, ASSP-26, No. 6 (December 1978) pp. 575-82.

Continuous Colorimetric Monitoring of Vapor-Phase Urea and Dynamics. L. E. Trimble and R. J. H. Voorhoeve, *Analyst*, 103 (1978), pp. 759-65.

Conversion of Nitric Oxide to Isodynamic Acid and Ammonium Dyanate Over Palladium, Iridium, and Platinum-10% Rhodium Catalysts. R. J. H. Voorhoeve and L. E. Trimble, *J. Catal.*, 54 (1978), pp. 269-80.

Correlation Between Elastic Constants and Flow Behavior in Metallic Glasses. H. S. Chen, *J. Appl. Phys.*, 49, No. 1 (Jan 1978), pp. 143-8.

A Coulometric Analysis of Iron II in Ferrites Using Chlorine. P. K. Gallsgher, *Amer. Ceram. Soc. Bull.*, 57 (June 1978), pp. 578-8.

Defects in Indium Phosphide Homoepitaxial Layers. S. Mshsjan, K. J. Bschmann, D. Brasen and E. Buehler, *J. Appl. Phys.*, 49, No. 1 (Jan 1978), pp. 245-8.

Depolarized Rayleigh Scattering from Benzonitrile. G. R. Alms and G. D. Patterson, *J. Chem. Phys.*, 68 (1978), pp. 3440.

Diffusion in a Palladium Copper-Silicon Metallic Glass. H. S. Chen, L. C. Kemmerling, J. M. Poste, and W. L. Brown, *Appl. Phys. Lett.*, 32, No. 8 (Apr 1978), pp. 461-3.

The Diffusion of Water in Optical Fibers. K. Nasssu, *Mst. Res. Bull.*, 13, No. 1 (Jan 1978), pp. 67-76.

- Digital Processing of Speech Signals.** L. R. Rabiner and R. W. Schaefer, Englewood Cliffs: Prentice-Hall, 1978.
- Dislocation—Free and Low Dislocation Quartz Prepared by Hydrothermal Crystallization.** R. L. Barns, P. E. Freeland, E. D. Kolb, R. A. Laudise, and J. P. Patel, *J. Cryst. Growth*, 43, No. 8 (July 1978), pp. 676–86.
- A Dispersive Phase Shifter for Use in Nonlinear Optical Interference Experiments.** C. R. Crsne and J. G. Bergman, *J. Appl. Phys.*, 50, No. 1 (1979), pp. 47–8.
- Dynamics of the Charge Density Wave II. Long-Range Coulomb Effects in an Array of Chains.** P. A. Lee and H. Fukuyama, *Phys. Rev. B*, 17, No. 2 (Jan 15, 1978), pp. 542–8.
- Dynamics of the Roughness Transition.** S. T. Chui and J. D. Weeks, *Phys. Rev. Lett.*, 40 (1978), pp. 733–6.
- Effect of Crystallographic Factors on Spherulitic Morphology, as Evidenced in Unidirectionally Solidified Polyamides.** A. J. Lovinger, *Bull. Amer. Phys. Soc.*, 23, No. 3 (Mar 1978), p. 420.
- Effect of Drawing Tension on Residual Stresses in Clad Glass Fibers.** C. R. Kurkjian and U. C. Paek, *J. Amer. Ceram. Soc.*, 61, No. 3–4 (Mar/Apr 1978), pp. 176–7.
- Effects of Chemical Treatment on Loss Quality of Microwave Dielectric Ceramics.** H. M. O'Bryan, J. Thompson, and J. K. Pourde, *Ber. Deut. Chem. GE8*, 55, No. 7 (1978), pp. 348–51.
- Electrical Properties of Binary Amorphous Alloys.** J. J. Hauser and J. Tauc, *Phys. Rev. B*, 17, No. 8 (Apr 1978), pp. 3371–80.
- Electron Irradiation of Polymers and Its Application to Resists for Electron Beam Lithography.** M. J. Bowden, *Critical Rev. in Solid State Science*, 8 (1979), p. 223.
- Electronic Orbitals of Se Bonded to Ni(100).** H. Froitzheim and H. D. Hagstrum, *J. Vac. Sci. Technol.*, 15 (1978), pp. 485–487.
- Enhanced Photoelectrochemical Solar Energy Conversion by Gallium Arsenide Surface Modification.** B. A. Parkinson, A. Heller, and B. Miller, *Appl. Phys. Lett.*, 33, No. 6 (Sept 15, 1978), pp. 521–3.
- EPR Spectra of Carhalkoxycarhenes, Geometric Isomerism in Ground State Triplets.** R. S. Hutton and H. D. Roth, *J. Amer. Chem. Soc.*, 100 (1978), pp. 4324–5.
- ESR Studies of Sulfur-Based Donor Heterocycles: Sulfur-33 Couplings.** F. B. Beamwell, R. C. Haddon, F. Wudl, and M. L. Ksplan, J. H. Marshall, *J. Amer. Chem. Soc.*, 100 (1978), pp. 4612–4.
- Examination of Aluminum-Copper Films During the Galvanostatic Formation of Anodic Oxide—Part II, Rutherford Backscattering and Depth Profiling.** H. H. Streblow, C. M. Melliar-Smith, and W. M. Augustyniak, *J. Electrochem. Soc.*, June 1978, pp. 915–8.
- Filter Characteristics of Codirectionally Coupled Waveguides with Weighted Coupling.** R. C. Alferness and R. S. Cross, *IEEE J. Quantum Electron.*, 14 (1978), pp. 843–7.
- FIR System Modeling and Identification in the Presence of Noise and Band-limited Inputs.** L. R. Rabiner, R. E. Crochiere, and J. B. Allen, *IEEE Trans. Acoust. Speech and Signal Processing* (Aug 1978), pp. 319–33.
- Fluorinated Molecule as a Tracer: Difluoroserotonin in Human Platelets Mapped by Electron Energy Loss Spectroscopy.** J. L. Costa, D. C. Joy, D. M. Maher, K. Kirk, and S. W. Hui, *Science*, 200 (1978), pp. 537–9.
- The Formation of Compounds with Nitrogen-Carbon Triple Bond During Reduction of Nitric Oxide Over Rhodium and Platinum Catalysis.** R. J. H. Voorhoeve, C. N. K. Patel, L. E. Trimbole, P. J. Kerl, *J. Catal.*, 54 (1978), pp. 102–5.
- Furnace-Drawn Silica Fibers With Tensile Strength Greater Than 3.5 Gm/M(2) (500 kpsi) in 1 Km Lengths.** F. V. DiMarcello and A. C. Hart, *Electron. Lett.*, 14, No. 18 (Aug 1978), pp. 578–9.
- Guest Editorial for Special Issue on Emerging 900-MHz Technologies.** W. H. Chriss and J. J. Milulski, *IEEE Trans. Veh. Technol.*, 27, No. 4 (Nov 1978), p. 173.
- Hydrolysis Reactions of Transition Metal Hexafluorides in Liquid Hydrogen Fluoride, Oxonium Salts with Platinum, Iridium and Ruthenium.** H. Selig, W. A. Sunder, F. A. DiSalvo, and W. E. Falconer, *J. Fluor. Chem* 11 (1978), pp. 39–50.

- Induced Magnetic Form Factor of Samarium in Mixed-Valence Compounds.** R. M. Moon, W. O. Koehler, D. B. McWhan, and F. Holtzberg, *J. Appl. Phys.*, **49** (1978), pp. 2107-12.
- Interaction Parameter in Polymer Mixtures.** T. K. Kwei and H. L. Frisch, *Macromolecule*, **11** (1978), p. 267.
- Intercalation of Halogen Fluorides into Graphite.** H. Selig, W. A. Sunder, Vasile M. J. F. A. Stevie, P. K. Gallagher, and L. B. Ebert, *J. Fluor. Chem.*, **12** (1978), pp. 397-412.
- The Liquid Phase Epitaxy of Aluminum (Y) Gallium (1-Y) Arsenic (1-X) Antimony (X) and the Importance of Strain Effects Near the Miscibility Gap.** R. E. Nahory, M. A. Pollack, E. D. Beebe, D. E. Winter, and J. C. Ilegems, *J. Electrochem. Soc.*, **125** (1978), pp. 1053-1118.
- Low Temperature Magnetic Susceptibilities of Cubic Langreinite Transition Metal Sulfates.** J. M. Waszczak, *Magn. Lett.*, **1**, No. 4 (1971), pp. 97-101.
- Magnetic and Structural Properties of Some Amorphous Rare Earth Transition Metal Thin Films.** A. G. Dirks and H. J. Leanhny, *IEEE Trans. Magn.*, **14** (1978), pp. 835-7.
- Magnetic Properties of Manganese Silicon-Cobalt Silicon Solid Solution Alloys.** K. Motoya, H. Yasudka, Y. Nakamura, and J. H. Wernick, *J. Phys. Soc.*, **44**, No. 5 (1978), 1525-32.
- Magnetic Susceptibility of an Amorphous Spin Glass: Gold, Silicon, Manganese.** J. J. Hauser and J. V. Waszczak, *Phys. Rev. B*, **8** (Dec 1978), pp. 6206-12.
- A Method for Evaluating Viscosities of Metallic Glasses from the Rates of Thermal Transformations.** H. S. Chen, *J. Crystal Solids*, **27** (1978), pp. 31-4.
- Model Study of Zwicker's Masking Period Patterns.** J. L. Hall, *J. Acoust. Soc. Amer.*, **64** (Aug 1978), pp. 473-7.
- Molecular Orbital Theory of Polyenes Implicated in the Dehydrochlorination of Poly(vinyl Chloride). II. Electronic Structures, Equilibrium Geometries, and Energetics of the Ground States of Polyene Cations and Neutral Polyenes.** R. C. Haddon and W. H. Starnes, Jr., *Amer. Chem. Ser.*, **169** (1978), pp. 333-62.
- Neutron Scattering at High Pressure in Singlet-Triplet Systems.** D. B. McWhan in *High-Pressure and Low-Temperature Physics*, C. W. Chu and J. A. Woollam, New York: Plenum Press, 1978, pp. 87-96.
- A New Self-Consistent Greens Function Approach to the Electronic Structure of Localized Defects.** G. A. Baraff and M. Schluter, *Phys. Rev. Lett.*, 1978, No. 2, pp. 892-5.
- Nonlinear Electrooptic Fabry-Perot Devices Using Reflected Light Feedback.** P. W. Smith, E. H. Turner, and B. B. Mumford, *Opt. Lett.*, **2**, No. 3 (Mar 1978), pp. 55-7.
- Numerical Evaluation of the Impulse Response of Multimode Optical Fibers.** J. Arnaud, *Fiber Integ. Opt.*, **1**, No. 1 (1977), pp. 77-100.
- Observations of Anomalous Intensities in the Lines of the Formyl Ion (+) Isotopes.** W. D. Langer, R. W. Wilson, P. S. Henry, and M. Guelin, *Astrophys. J.*, **225**, (Nov 1, 1978), pp. 2139-42.
- Optical Radiation from Low Energy Hydrogen Atomic and Molecular Ion-Surface Collisions.** S. Y. Leung, N. H. Tolk, W. Heiland, J. C. Tully, J. S. Kraus, and P. Hill, *Phys. Rev. A*, **18** (1978), pp. 447-51.
- On the Orientation of Hydromagnetic Waves in the Magnetosphere.** A. Hasegawa and L. J. Lanzerotti, *Rev. Geophys. Space Phys.*, **16**, No. 2 (May 1978), pp. 263-6.
- Parametric Excitation of Drift Waves with the Pump Near the Ion Cyclotron Frequency in a Two-Ion Species Plasma.** M. Ono, M. Porkolah, and R. P. H. Chang, *Phys. Lett.*, **67A** (1978), p. 379.
- Parametric Lower Hybrid Instability Driven by Modulated Electron Beam Injection.** G. R. Allen, D. K. Owens, S. W. Seiler, M. Yamada, H. Ikezi, and M. Porkolah, *Phys. Rev. Lett.*, **41**, No. 15 (Oct 1978), pp. 1045-8.
- Particle Kinetics of Selective Excitation Spectroscopy.** R. A. Stern, *Phys. Fluids*, **21**, No. 8 (Aug 1978), pp. 1287-94.
- Phenylene[1,9-CD]Dithioly: The First Example of a Monomeric, Coplanar, Carbon-Based Free Radical.** R. C. Haddon, F. Wudl, M. L. Kaplan, J. H. Marshall, and F. R. Bramwell, *J. Soc. Chem. Commun. (London)* (1978), pp. 429-30.
- Photocollection Efficiency and Interface Changes of MBE Grown Abrupt P-(Gallium Arsenide)-Nitrogen (Aluminum (0.33) Gallium (0.67) Arsenic) Hete-**

- rojunctions.** H. Kroemer, W. Y. Chien, H. C. Casey, and A. Y. Cho, *Appl. Phys. Lett.*, **33** (1978), p. 749.
- Photoemission Studies of 2P Core Levels of Pure and Heavily Doped Silicon.** W. Eberhardt, G. Kalkoffen, C. Kunz, D. E. Aspnes, and M. Cardona, *Phys. Status Solidi*, (b) **88** (1978), pp. 135-43.
- Pinning and Conductivity of Two-Dimensional Charge Density Waves in Magnetic Fields.** H. Fukuyama and P. A. Lee, *Phys. Rev. B*, **18** (1978), p. 6245.
- Plastic Deformation of Vanadium (3) Silicon Single Crystals at Elevated Temperatures.** S. Mahajan, J. H. Wernick, G. Y. Chin, S. Nakahara, and C. T. H. Geballe, *Appl. Phys. Lett.*, **33**, No. 11 (Dec. 1, 1978), pp. 972-74.
- Polarimetry of Specular and Nonmultiple Scattered Electromagnetic Radiation from Selectively Roughened Silicon Surfaces.** M. D. Williams and D. E. Aspnes, *Phys. Rev. Lett.*, **41** (1978), pp. 1667-70.
- Polarization Characteristics of Noncircular Core, Single-Mode Fibers.** V. Ramaswamy, W. G. French, and R. D. Standley, *Appl. Opt.*, **17**, No. 18 (Sept. 15, 1978), pp. 3014-7.
- Poly(vinylidene) Fluoride Used for Piezoelectric Coin Sensors.** G. R. Crane, *IEEE Trans. Sonic and Ultrasonic*, **25**, No. 6 (1978), pp. 393-5.
- Positronium Formation at Surface.** A. P. Mills, *Phys. Rev. Lett.*, **41** (1978), pp. 1828-31.
- A Practical Electron Spectrometer for Chemical Analysis.** D. C. Joy and D. M. Maher, *J. Microscopy*, **114** (Nov. 1978), pp. 117-29.
- Properties of Polycrystalline Aluminum Arsenide/Gallium Arsenide on Graphite Heterojunctions for Solar Cell Applications.** W. D. Johnston and W. M. Callahan, *J. Electrochem. Soc.*, **125** (June 1978), pp. 977-83.
- Pseudo-Three-Dimensional Turbulence in Magnetized Nonuniform Plasma.** A. Hasegawa and K. Mins, *Phys. Fluids*, **21**, No. 1 (Jan 1978), pp. 87-92.
- Pulsewidth Dependence on Intracavity Bandwidth in Synchronously Mode-Locked CW Dye Lasers.** C. P. Ausschnitt and R. K. Jain, *Appl. Phys. Lett.*, **32**, No. 11 (Jun 1, 1978), pp. 727-30.
- Questions About Rotating Superfluid Dynamics: Problems of Pulsar Astrophysics Accessible in the Laboratory.** P. W. Anderson, D. Pines, M. Ruderman, and J. Shsham, *J. Low Temp. Phys.* **30** (1978), p. 839.
- Real-Time Extraction of Bubble Chamber Tracks Using a Single Vidicon.** C. E. Roos, J. O. Limb, and E. G. Bowen, *Nucl. Instr. and Methods*, **153** (1978), pp. 383-8.
- A Refraction Correction for Rheed Patterns from Amorphous Surfaces.** K. J. Mstysik, *J. Appl. Phys.*, **49**, No. 6 (June 1978), pp. 3600-1.
- Room Temperature Threshold Current Dependence of Gallium Arsenide-Aluminum (X) Gallium (1-X) Arsenide Double Heterostructure Lasers on X and Active Layer Thickness.** H. C. Casey, *J. Appl. Phys.*, **49**, No. 7 (Jul 1978), pp. 3684-92.
- The Rotating Sample Technique for Measurement of Random Backscattering Yields from Crystals and Its Application to Beta-Alumina.** P. Blood, L. C. Feldman, G. L. Miller, and J. P. Remeiks, *Nucl. Instr. and Methods*, **149** (1978), pp. 225-8.
- Rotational Excitation of Molecules by Electrons in Interstellar Clouds.** P. Goldsmith, *Astron. Astrophys.* **54** (1978), p. 645.
- Self-Consistent APW Electronic Structure Calculations for the A-15 Compounds Vanadium (3X) and Niobium (3X), X = Aluminum, Gallium, Silicon, Germanium, and Tin.** B. M. Klein, L. L. Boyer, D. A. Papsconstantopoulos, and L. F. Mattheiss, *Phys. Rev. B*, **18** (Dec 15, 1978), pp. 6411-38.
- A Simple High Vacuum Evaporation System with Low Temperature Substrate.** J. P. Garino, *Rev. Sci. Instrum.*, **49**, No. 8 (Aug 1978), pp. 1218-20.
- Simultaneous Observation of Nuclear Spin Polarization and Line Broadening, Evidence for an Alternative Polarization Mechanism.** M. L. M. Schilling and H. D. Roth, *J. Amer. Chem. Soc.*, **100** (1978), pp. 6533-5.
- Single Crystal Aluminum Schottky Barrier Diodes Prepared by Molecular Beam Epitaxy.** A. Y. Cho and P. D. Dernier, *J. Appl. Phys.* **49** (June 1978), pp. 3328-32.
- Some Viscoelastic Crack Growth Relations for Orthotropic and Prestrained**

- Media.** G. S. Brockwsy and R. A. Schsperry, *Eng. Fract. Mech.*, **10** (June 1978), pp. 453-68.
- Spatially Controlled Crystal Regrowth of Ion Implanted Silicon by Laser Irradiation.** G. K. Celler, J. M. Poste, and L. C. Kimerling, *Appl. Phys. Lett.*, **32** (1978), pp. 464-6.
- Spatially Resolved Photoluminescence Characterization and Optically Induced Degradation of Indium (1-X) Gallium (X) Arsenic (Y) Phosphorus (1-Y) DH Laser Material.** W. D. Johnston, G. Y. Epps, R. E. Nahory, and M. A. Pollack, *Appl. Phys. Lett.*, **33** (Dec 1978), pp. 992-4.
- Specific Heat and Phonon Dispersion in Liquid Helium-4.** D. S. Greywall, *Phys. Rev. B*, **18** (Sept 1, 1978), pp. 2127-44.
- Spin-Wave Excitations and Low Temperature Magnetization in the Amorphous Metallic Ferromagnets (Iron (X) Nickel (1-X)) (75) Phosphorus (16) Boron (6) Aluminum (3).** R. J. Birgenesu, J. A. Tarvin, G. Shirane, E. M. Gyorgy, R. C. Sherwood, H. S. Chen, and C. L. Chien, *Phys. Rev. B*, **18** (Sept 1978), pp. 2192-5.
- Sputtering of Platinum Silicide.** Z. L. Lisu, J. M. Msyer, W. Brown, and J. M. Poste, *J. Appl. Phys.*, **49**, No. 10 (Oct 1978), pp. 5295-305.
- The Stability of Interstellar Clouds Containing Magnetic Fields.** W. D. Langer, *Astrophys. J.*, **225** (1978), p. 95.
- Statics and Dynamics of Incommensurate Lattices.** G. Theodorou and T. M. Rice, *Phys. Rev. B*, **18** (1978), pp. 2840-56.
- Stationary Spectrum of Pseudo-Three-Dimensional Turbulence in Magnetized Plasmas.** A. Hasegawa, T. Inamurs, K. Mins, and T. Taniuti, *J. Phys. Soc. Jsp.*, **45**, No. 3 (Sept 1978), pp. 1005-10.
- Stereoregulation Energies in Propene Polymerization.** A. Zambelli, P. Locstelli, G. Zannoni, and P. A. Bovey, *Mscromolecules*, **11** (1978), p. 923.
- Structural Aspects of Polymerization in Crystalline Ionic Monomers: Comparison of Barium Methacrylate Monohydrate and Anhydride.** M. J. Bowden, C. H. L. Kennard, J. H. O'Donnell, R. D. Sothmsn, N. W. Iasscs, and G. Smith, *J. Mscromolecules, Sci. Chem.*, **12** (1978), pp. 63.
- Structural Defects in Annealed Silicon Containing Oxygen.** A. Staudinger, *J. Appl. Phys.*, **49**, No. 7 (July 1978), pp. 3870-4.
- Structure of the Electron Gas at the Surface of Liquid Helium.** C. C. Grimes, *J. de Phys. III* (1978), pp. 1352-7.
- Studies of Adsorbate Electronic Structure Using Ion-Neutralization of Photoemission Spectroscopies.** H. D. Hsgstrum in *Electron and Ion Spectroscopy of Solids*, L. Freimsna, J. Vennik, and W. Dekeyss, eds. New York: Plenum Press, 1978, pp. 273-323.
- Studies of the Silicon-Silicon Dioxide Interface by MEV Ion Scattering.** L. C. Feldmsn, I. Stensgsard, P. J. Silverman, and T. E. Jscckman in *The Physics of Silicon Dioxide and Its Interfaces*, S. T. Pantelides, ed., New York: Pergamon Press, 1978, pp. 844-51.
- A Study of Surface Reproducibility and Impurity Segregation Using Ion Neutralization and Photoemission Spectroscopies.** T. Sskurai and H. D. Hsgstrum, *Surf. Sci.*, **70** (1978), pp. 617-28.
- Study of Zone Folding Effects on Phonons in Alternating Monolayers of Gallium Arsenide-Aluminum Arsenide.** A. S. Barker, J. L. Merz, and A. C. Gossard, *Phys. Rev. B*, **17**, No. 8 (Apr 15, 1978), pp. 3181-96.
- Subpicosecond Spectroscopy.** E. P. Ippen and C. V. Shank, *Phys. Todsy*, **41**, No. 7 (May 1978).
- Surface Properties of TiSe₂.** W. Fsbian, C. H. Chen, and F. C. Brown, *Bull. Amer. Phys. Soc.*, **23** (1978), p. 390.
- Surface Segregation in Copper-Nickel Copper Potassium Alloys. A Comparison of Low-Energy Ion-Scattering Results with Theory.** H. H. Brongersms, M. J. Sparnsy, and T. M. Buck, *Surf. Sci.*, **71**, No. 1 (1978), pp. 657-78.
- Surface Studies of Tungsten by MEV He Scattering.** R. A. Zuhr, L. C. Feldman, R. L. Kauffman, and P. J. Silverman, *Nucl. Instr. and Methods*, **149** (1978), pp. 349-54.
- Temperature Dependence of Exchange Narrowing in the One-Dimensional Antiferromagnet Nitrogen (Carbon Hydrogen (3)) (4) Manganese Chlorine (3) (TMMC).** T. T. P. Cheung, Z. G. Soos, R. E. Dietz, and F. R. Merritt, *Phys. Rev. B*, **17** (1978), pp. 1266-76.

- Thermal Expansion of Amorphous Metal Alloys.** H. A. Brooks, *J. Appl. Phys.*, 49, No. 1 (Jan 1978), pp. 213-4.
- Transport Properties and the Phase Transition on Titanium (1-X) M(X) Selenium (2) (M = Tantalum or Vanadium).** F. J. DiSalvo and J. V. Waszczak, *Phys. Rev. B*, 17 (1978), pp. 3801-7.
- The Tunneling Density of States of Superconductive Niobium-Tin.** D. F. Moore, M. R. Beasley, and J. M. Posell, *J. de Phys.*, 39, No. 6 (1978), p. 1390.
- Tunneling of Solitons and Charge Density Waves Through Impurities.** A. I. Larkin and P. A. Lee, *Phys. Rev. B*, 17 (1978), p. 1596.
- The Two-Dimensional Electron Gas in a Strong Magnetic Field.** H. Fukuyama, P. M. Platzman, and P. W. Anderson, *Surf. Sci.*, 73 (1978), p. 374.
- Use of Ion Beam Techniques to Characterize Thin Plasma Grown GaAs and GaAlAs Oxide Films.** R. L. Ksuffman, L. C. Feldman, and R. P. H. Chang, *Nucl. Instr. Methods*, 149 (1978), pp. 619-22.
- Use of the Parallel Plate Plastometer to Characterize Glass-Reinforced Resins: I. Flow Model.** C. J. Bartlett, *J. Elastomers Plast.*, 10 (Oct. 1978), pp. 369-76.
- Use of Thin Silicon Crystals in Backscattering Channeling Studies of the Silicon-Silicon Dioxide Interface.** L. C. Feldman, P. J. Silverman, J. Williams, and T. Jackman, *I. Stensgaard, Phys. Rev. Lett.*, 20 (Nov 13, 1978), pp. 1396-9.
- Vacuum Interlock System for Molecular Beam Epitaxy.** J. W. Robinson and M. Ilegems, *Rev. Sci. Instrum.*, 49, No. 2 (Feb 1978), pp. 205-7.
- Vortex Formation by Baroclinic Vector in Laser-Pellet Interaction.** A. Hasegawa, M. Y. Yu, and P. K. Shukla, *Phys. Rev. Lett.*, 41, No. 24 (Dec 1978), p. 1656.
- Weak Beam Electron Microscopy of Faulted Dipoles in Deformed Silicon.** A. T. Winters, S. Mahajan, and D. Bressen, *Phil. Mag. Part A*, 37, No. 3 (Mar 1978), pp. 315-26.

MATHEMATICS

- Evaluation of a Determinant.** D. Slepian, *SIAM Rev.*, 20, No. 3 (July 1978), p. 594.
- Extremal Self-Dual Lattices Exist only in Dimensions 1-8, 12, 14, 15, 23, and 24.** J. H. Conway, A. M. Odlyzko, and N. J. A. Sloane, *Mathematische Annalen*, 25 (1978), pp. 36-43.
- Hamiltonian Decompositions of Products of Cycles.** M. F. Foregger, *Discrete Math.*, 24 (December 1978), pp. 251-60.
- A Note on the Eigenvalues of Hermitian Matrices.** D. Slepian and J. Landau, *SIAM J. Math. Anal.*, 9, No. 2 (Apr 1978), pp. 291-7.
- Self-Dual Codes over GF(2).** F. J. MacWilliams, A. M. Odlyzko, N. J. A. Sloane, and N. M. Ward, *J. Comb. Theory A*, 25 (1978), pp. 288-318.
- Two- and 3-Dimensional Localization of Random Phase Waves.** K. Mina and A. Hasegawa, *Rocky Mt. Math. J.*, 8, No 1-2 (1978), pp. 309-22.

ENGINEERING

- On Creating Reference Templates for Speaker Independent Recognition of Isolated Words.** L. R. Rabiner, *IEEE Trans. Acoust. Speech Signal Processing*, 26, No. 1 (February 1978), pp. 34-42.
- The Data Encryption Standard Retrospective and Prospects.** R. Morris, *IEEE Trans. Commun.*, 16, No 6 (November 1978), pp. 11-14.
- Device Physics of Dual-Dielectric, Charge-Storage Cells.** K. K. Thornber and D. Kahng, *J. Electrochem. Soc.*, 78, No. 2 (1978), pp. 616-7.
- Electroless Copper Plating of Multilayer Printed Circuit Boards.** C. J. Bartlett, R. D. Rust, and R. J. Rhodes, *Plat. Surf. Finish.*, 65 (July 1978), pp. 36-41.
- Ensuring Contact-Finish Quality of Selectively Plated Connectors.** D. L. Hindermann, R. L. Meek, B. T. Kerns, M. E. Terry, and D. B. Bixler, *W. Elec. Eng.*, 22 (Apr. 1978), pp. 5-11.
- Long-Term Mechanical Behavior of Optical Fibers Coated with a UV-Curable Epoxy Acrylate.** T. T. Wang and H. M. Zupko, *J. Mater. Sci.*, 13 (1978), pp. 2241-8.
- New Grids for Improved Polarization Duplexing of Microwaves in Reflector Antennas.** C. Dragone, *IEEE Trans. Ant. Propag.*, 26, No. 3 (May 1978), pp. 459-63.

SOCIAL AND LIFE SCIENCES

Industrial Health Education in Morristown, New Jersey. M. N. Wagner, N. Bryant, and R. B. Bauer, *Public Health Rep.*, 91, No. 3 (May-June 1978), pp. 273-4.

B. T. Matthias—Scientist and Humanist. A. M. Clogston, N. B. Hannay, and C. K. N. Patel, *J. Less Common Metals*, Matthias Issue, 62 (Nov-Dec 1978), p. vii.

Syllables as Concatenative Phonetic Units. O. Fujimura and J. B. Lovins in *Syllables and Segments*, A. Bell and J. B. Hooper, eds., Amsterdam: North-Holland, 1978, pp. 107-120.

MANAGEMENT AND ECONOMICS

Science and Technology as Society Resources. N. B. Hannay, N. J. Bell J., 1, No. 2 (Fall 1978).

